REFERENCES 79

[88] A. Voulimeneas, D. Song, P. Larsen, M. Franz, and S. Volckaert, "dmvx: Secure and efficient multi-variant execution in a distributed setting," in Proceedings of the 14th European Workshop on Systems Security, pp. 41–47, 2021.

- [89] I. Bow, N. Bete, F. Saqib, W. Che, C. Patel, R. Robucci, C. Chan, and J. Plusquellic, "Side-channel power resistance for encryption algorithms using implementation diversity," *Cryptography*, vol. 4, no. 2, 2020.
- [90] R. L. Castro, C. Schmitt, and G. D. Rodosek, "Armed: How automatic malware modifications can evade static detection?," in 2019 5th International Conference on Information Management (ICIM), pp. 20–27, 2019.
- [91] J. Cabrera Arteaga, O. Floros, O. Vera Perez, B. Baudry, and M. Monperrus, "Crow: code diversification for webassembly," in *MADWeb*, *NDSS 2021*, 2021.
- [92] R. Sasnauskas, Y. Chen, P. Collingbourne, J. Ketema, G. Lup, J. Taneja, and J. Regehr, "Souper: A Synthesizing Superoptimizer," arXiv preprint 1711.04422, 2017.
- [93] J. Cabrera Arteaga, P. Laperdrix, M. Monperrus, and B. Baudry, "Multi-Variant Execution at the Edge," arXiv e-prints, p. arXiv:2108.08125, Aug. 2021.
- [94] J. Lettner, D. Song, T. Park, P. Larsen, S. Volckaert, and M. Franz, "Partisan: fast and flexible sanitization via run-time partitioning," in *International Symposium on Research in Attacks, Intrusions, and Defenses*, pp. 403–422, Springer, 2018.
- [95] B. G. Ryder, "Constructing the call graph of a program," *IEEE Transactions on Software Engineering*, no. 3, pp. 216–226, 1979.
- [96] S. Narayan, C. Disselkoen, D. Moghimi, S. Cauligi, E. Johnson, Z. Gang, A. Vahldiek-Oberwagner, R. Sahita, H. Shacham, D. Tullsen, et al., "Swivel: Hardening webassembly against spectre," in *USENIX Security Symposium*, 2021.
- [97] E. Johnson, D. Thien, Y. Alhessi, S. Narayan, F. Brown, S. Lerner, T. McMullen, S. Savage, and D. Stefan, "Sfi safety for native-compiled wasm," NDSS. Internet Society, 2021.
- [98] J. Cabrera-Arteaga, N. Fitzgerald, M. Monperrus, and B. Baudry, "WASM-MUTATE: Fast and Effective Binary Diversification for WebAssembly," arXiv e-prints, p. arXiv:2309.07638, Sept. 2023.
- [99] M. Willsey, C. Nandi, Y. R. Wang, O. Flatt, Z. Tatlock, and P. Panchekha, "Egg: Fast and extensible equality saturation," *Proc. ACM Program. Lang.*, vol. 5, jan 2021.

80 REFERENCES

[100] "Stop a wasm compiler bug before it becomes a problem | fastly." https://www.fastly.com/blog/defense-in-depth-stopping-a-wasm-compiler-bug-before-it-became-a-problem, 2021.

- [101] D. Cao, R. Kunkel, C. Nandi, M. Willsey, Z. Tatlock, and N. Polikarpova, "Babble: Learning better abstractions with e-graphs and anti-unification," Proc. ACM Program. Lang., vol. 7, jan 2023.
- [102] R. Tate, M. Stepp, Z. Tatlock, and S. Lerner, "Equality saturation: A new approach to optimization," in *Proceedings of the 36th Annual ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages*, POPL '09, (New York, NY, USA), p. 264–276, Association for Computing Machinery, 2009.
- [103] T. D. Morgan and J. W. Morgan, "Web timing attacks made practical," *Black Hat*, 2015.
- [104] T. Schnitzler, K. Kohls, E. Bitsikas, and C. Pöpper, "Hope of delivery: Extracting user locations from mobile instant messengers," in 30th Annual Network and Distributed System Security Symposium, NDSS 2023, San Diego, California, USA, February 27 - March 3, 2023, The Internet Society, 2023.
- [105] Kaspersky, "The state of cryptojacking in the first three quarters of 2022," 2022.
- [106] Mozilla, "Protections Against Fingerprinting and Cryptocurrency Mining Available in Firefox Nightly and Beta," 2019.
- [107] J. Cabrera-Arteaga, M. Monperrus, T. Toady, and B. Baudry, "Webassembly diversification for malware evasion," *Computers & Security*, vol. 131, p. 103296, 2023.
- [108] P. Kocher, J. Horn, A. Fogh, D. Genkin, D. Gruss, W. Haas, M. Hamburg, M. Lipp, S. Mangard, T. Prescher, M. Schwarz, and Y. Yarom, "Spectre attacks: Exploiting speculative execution," in 2019 IEEE Symposium on Security and Privacy (SP), pp. 1–19, 2019.
- [109] M. Schwarz, C. Maurice, D. Gruss, and S. Mangard, "Fantastic timers and where to find them: High-resolution microarchitectural attacks in javascript," in *Financial Cryptography and Data Security* (A. Kiayias, ed.), (Cham), pp. 247–267, Springer International Publishing, 2017.
- [110] G. J. Duck, X. Gao, and A. Roychoudhury, "Binary rewriting without control flow recovery," in *Proceedings of the 41st ACM SIGPLAN Conference on Programming Language Design and Implementation*, PLDI 2020, (New York, NY, USA), p. 151–163, Association for Computing Machinery, 2020.